PRODUCED BY THE LONG ISLAND SECTION OF THE INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

IEEE | LONG ISLAND SECTION

THE PULSE OF LONG ISLAND

JUNE 2018




INSIDE THIS ISSUE

1953-2018 65 IEEE LONG ISLAND SECTION

CHAIR's MESSAGE

On May 4, 2018, the **Fourteenth Annual LISAT Conference** was held at Farmingdale State College. Many informative lectures were held, and the professional development track sponsored by the Power and Energy Society was well attended. You can read more about the LISAT Conference in the article appearing on page 10 in this issue of the ***PULSE.*** An upcoming social Networking event is being planned for June 4th. Please be on the watch for an email with the location, time and further information. On June 19th the Electromagnetic Compatibility Society (EMCS) is sponsoring a seminar on **"Selecting an EMI Filter"** at Retlif Laboratories in Ronkonkoma. Please register in vTools at ***https://events.vtools.ieee.org/m/173009***.

The LI Section Historical Milestones Committee has been actively planning another important event. A ceremony will be held on Wednesday, September 5th at 5:00 PM at the new MART building at Stony Brook University. We will honor Dr. Paul Lautebur, the Stony Brook professor who produced the first two-dimensional MRI image. I would encourage you to check the Section website and calendar frequently to stay informed about all of our upcoming events and seminars.

We are starting the process of nominations for officers of the Section to serve during 2019. Energetic volunteers with a positive and collaborative attitude are needed to help us lead the Section. I would encourage all of our members to be engaged, involved, and be a part of supporting the IEEE Long Island Section. There is much that can be achieved. If you would like further information, please contact me at **chairman@ieee.li.**

Nick Golas has been serving as the interim editor of the ***PULSE***. As this issue will be his last, I would like to personally thank Nick for his hard work in enabling the Section to have such a high quality and informative publication. Supriya Karmakar will become the new ***PULSE*** editor. I would like to thank Supriya for volunteering to assume this responsibility. Please consider writing an article for the ***PULSE***.

Executive Committee meetings are not scheduled for June or July. I wish all of you a happy and safe summer. Our next Executive Committee meeting is scheduled for August 27th. Any member of the IEEE Long Island Section is welcome to attend the Executive Committee meetings. Please contact me at **chairman@ieee.li** for further information on attending. I would also ask that you consider serving on a Committee or volunteering to become active in one of our Societies. There are several Societies that have Chair and/or Vice Chair vacancies. The Section website has information about all of the Societies. You can also contact me at **chairman@ieee.li** for further information.

It is very important to me that the Section provide value to all of our members. Any comments and recommendations that you have are always welcome. You can contact me at **chairman@ieee.li**. Thank you for your support of our Section, and I look forward to meeting you at our upcoming events.

Warm Regards,
Lou D'Onofrio
2018 Chair, IEEE Long Island Section

IEEE LONG ISLAND SECTION

THE PULSE

JUNE 2018 OF LONG ISLAND

The Pulse of Long Island is produced by the **Long Island Section** of the **Institute of Electrical & Electronic Engineers**. It is published monthly except during July & August.

Nikolaos Golas, *Editor*
pulse@IEEE.LI

Anthony Giresi, *Graphic Designer*
pulse@IEEE.LI

IEEE

INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

445 Hoes Lane, Piscataway, NJ 08855-1331

Phone: 1-800-678-4333 (USA & Canada)

Phone: 1-732-981-0060 (Worldwide)

Website: www.ieee.org

E-mail: contactcenter@ieee.org

LET YOUR VOICE HEARD

The Pulse of Long Island is a newsletter for the members of the IEEE Long Island Section. You can let your voice heard by writing to the Editor. How to bring more value to our members? Interesting new technology, or a project? An issue of interest to members of the IEEE Long Island, Long Island engineers and computer professionals, or Long Island technical community at large? Write to the **Pulse**. Let your letter be read, and your voice heard.

HOW TO CONTRIBUTE:

Send your letters or articles via email to **pulse@ieee.li.**

If selected for publication, the letter or article will be edited before being published.

CONTRIBUTION DEADLINE:

20th of a month for the next month edition.

CONTRIBUTIONS FROM LONG ISLAND TECHNICAL & ENGINEERING COMPANIES:

Publish your technology-related ***press release*** (up to one page) at no cost. Please send the press release as a PDF file attached to email to **pulse@ieee.li,** addressed to the Editor, with a Subject line "Pulse -PR" followed by your company name, and the responsible contact person's name, email and phone number in the email body.

ADVERTISERS:

Please contact us at **pulse@ieee.li** for advertising rates.

IEEE LONG ISLAND SECTION OFFICERS

Chair
LOU D'ONOFRIO
Office: 631-928-7894
chair@ieee.li

First Vice Chair
JAMES COLOTTI
1vc@ieee.li

Second Vice Chair
HOWARD EDELMAN
2vc@ieee.li

Treasurer
SANTO MAZZOLA
treasurer@ieee.li

Secretary
LORENZO LoMONTE
secretary@ieee.li

Junior Past Chair
MARJANEH ISSAPOUR

Senior Past Chair
M. NAZRUL ISLAM

AFFINITY GROUPS AND COMMITTEES

Employment Assistance
CHARLES PLECKAITIS
eac@ieee.li

Educational Activities
MARJANEH ISSAPOUR
education@ieee.li

Entrepreneur Network
BILL WILKES SR

Membership Development
CARL MESHENBERG
membership@ieee.li

Young Professionals
NEIL RAMOS
yp@ieee.li

Life Members
DON GRIECO
life@ieee.li

Student Development Activities
GLENN LUCHEN
student@ieee.li

Women in Engineering (WIE)
MIHAELA RADU
wie@ieee.li

Awards Committee
JESSE TAUB
awards@ieee.li

Professional Activities
NIKOLAOS GOLAS
pace@ieee.li

Legal Affairs
JOHN VODOPIA
legal@ieee.li

Professional and Industry Liaison
BILL WILKES SR
liason@ieee.li

THE IEEE LONG ISLAND SECTION WEBSITE

The IEEE LI Section website is regularly updated to reflect recent section activity and upcoming events. Each Society and Affinity Group has a dedicated page that describes their function and includes contact information. Visit our site at: **www.ieee.li**

CONSULTANT'S NETWORK OF LONG ISLAND

The Consultant's Network of Long Island maintains a referral service of engineering, computer, managerial and technical professionals. For more information, please visit their website at:
www.consult-li.com

MEMBERSHIP DEVELOPMENT

For more information on membership with the Long Island Section of the IEEE, e-mail Carl Meshenberg at:
membership@ieee.li

2018 IEEE LI SECTION SOCIETIES/CHAPTER OFFICERS

AEROSPACE & ELECTRONIC SYSTEMS SOCIETY (AES)
Chair: **Dave Mesecher**
Vice Chair: **Vacant**
Email: aes@ieee.li

ANTENNAS AND PROPAGATION SOCIETY (APS)
Chair: **Bryan Tropper**
Vice Chair: **Vacant**
Email: ap@ieee.li

CIRCUITS AND SYSTEMS SOCIETY (CAS)
Chair: **James Colotti**
Vice Chair: **Alberto de Leon**
Email: cas@ieee.li

COMMUNICATIONS SOCIETY (COMSOC)
Chair: **Howard Hausman**
Vice Chair: **Tony Bowden**
Email: communications@ieee.li

COMPUTER SOCIETY (CS)
Chair: **Barbara Porter**
Vice Chair: **Vacant**
Email: computer@ieee.li

ELECTROMAGNETIC COMPATIBILITY SOCIETY (EMCS)
Chair: **Don Lerner**
Vice Chair: **Santo Mazzola**
Email: emc@ieee.li

ENGINEERING IN MEDICINE & BIOLOGY SOCIETY (EMBS)
Chair: **John Vodopia**
Vice Chair: **Vacant**
Email: emb@ieee.li

INSTRUMENTATION AND MEASUREMENT SOCIETY (IMS)
Chair: **Joe Jordan**
Vice Chair: **Ephraim Adeola**
Email: im@ieee.li

MICROWAVE THEORY AND TECHNIQUES SOCIETY (MTT)
Chair: **Saikumar Padmanabhan**
Vice Chair: **Eric Darvin**
Email: mtt@ieee.li

NUCLEAR AND PLASMA SCIENCES SOCIETY (NPS)
Chair: **Shaorui Li**
Vice Chair: **Graham Smith**
Email: nps@ieee.li

PHOTONICS SOCIETY (IPS)
Chair: **Adam A. Filos**
Vice Chair: **M. Nazrul Islam**
Email: photonics@ieee.li

POWER & ENERGY/INDUSTRY APPLICATIONS SOCIETY (PES & IAS)
Chair: **Rob Schmid**
Vice Chair: **Alberto de Leon**
Email: power@ieee.li

POWER ELECTRONICS SOCIETY (PELS)
Chair: **Ronald DeLuca**
Vice Chair: **Predrag Hadzibabic**
Email: pels@ieee.li

PRODUCT SAFETY ENGINEERING SOCIETY (PSES)
Chair: **Vacant**
Vice Chair: **Vacant**
Email: safety@ieee.li

SIGNAL PROCESSING SOCIETY (SPS)
Chair: **Jessica Donaldson**
Vice Chair: **Rhonda Green**
Email: signal@ieee.li

SOCIAL IMPLICATIONS OF TECHNOLOGY SOCIETY (SSIT)
Chair: **Howard Edelman**
Vice Chair: **John Vodopia**
Email: social@ieee.li

The Long Island Section of IEEE has 18 Chapters. Each Chapter is a technical subunit of the Long Island Section, associated with an IEEE Society. The Chapters, as well as the Section, are always welcoming volunteers. If you would like to help with any of the Long Island Chapter's steering groups, please do contact the relevant Chapter Chair, Vice Chair, or one of the Section officers.

SYSTEMS COUNCIL (SYSC)
Chair: **Stephanie White**
Vice Chair: **Vacant**
Email: systems@ieee.li

TECHNOLOGY & ENGINEERING MANAGEMENT SOCIETY (TEMS)
Chair: **Brian Quinn**
Vice Chair: **Vacant**
Email: tmc@ieee.li

Long Island's Electrical and Electronic History

Jesse Taub
IEEE Long Island
Section Historian

MICROWAVE ENGINEERING CONTRIBUTIONS FROM LONG ISLAND ORGANIZATIONS

I was recently asked by our Microwave Theory and Techniques Chapter Chair, Sai Padnamabhan, to list some significant microwave engineering accomplishments and activity by Long Island individuals and organizations. They are to be part of the History Exhibit at the International Microwave Symposium to be held in Philadelphia this June. I also presented them at our Section's recent one day Microwave Symposium. I thought that they would be of interest to all of our members. In the interest of space, I limited it to the following:

POLYTECHNIC INSTITUTE OF BROOKLYN (now NYU)

Made fundamental contributions to bridging electromagnetic field theory with microwave circuit design. Most notably the work of Professor Nathan Marcuvitz in the 1940's. who wrote the classic Waveguide Handbook (Vol 10 of the MIT Radiation Laboratory series) which is still in use. He was given the prestigious IEEE Heinrich Hertz Award for his contributions to electromagnetic theory. Professor Marcuvitz was also an excellent teacher. Those of us who were privileged to take his courses gained great insights into microwave theory.

POLYTECHNIC RESEARCH AND DEVELOPMENT CORP.

Founded in 1944 by Professor Ernst Weber of the Polytechnic institute of Brooklyn. They developed some of the first commercial microwave attenuators, signal generators and spectrum analyzers. Dr. Weber became the first President of the IEEE in 1963.

SPERRY GYROSCOPE CORP.

Was in leading supplier of microwave klystron oscillators and amplifiers in WWII and the postwar era. In the late 1940s it developed one of the first microwave component product lines, Microline. Their klystron expertise was in no small part due to the innovative Varian brothers, who were employed there during WWII. After the war, they moved back to California to found their own company. Sperry also excelled in radar. Seymour Cohn, one of the best microwave engineers ever.

AIRBORNE INSTRUMENTS LABORATORY (AIL)

Now part of Harris, was formed in 1945 by some of the leading engineers from the MIT Radiation Lab and Harvard's Radio Research Lab. They did pioneering work in electronic warfare receivers as well as radars for air traffic control. AIL developed the first all-weather microwave landing system They also were leaders in the development of low-noise parametric amplifiers, MASER's and FET's. Other achievements were the first Terahertz waveguide components (1963) and the early development of strip line components in the 1950's. Fifteen of its staff members became IEEE Fellows.

LNR COMMUNICATIONS

Founded in 1971 by former AIL engineers with expertise in low-noise microwave receivers, became a leading supplier of earth station equipment in the emerging field of satellite communications. Its President, Seymour Okwit, was a former MTT Transactions editor and an ADCOM Chairman.

TELEPHONICS

Based in Farmingdale, is a leading supplier of radar, IFF & air traffic control systems.

MITEQ (now part of Narda-Miteq)

Was also an AIL spin-off in the mid 70's. It became and still is a world-wide supplier of microwave components and subassemblies, particularly for satellite communications.

NARDA MICROWAVE (now Narda-Miteq)

Was started by Sperry engineers 60 years ago. Early products included directional couplers and precision attenuators. They are now a leading supplier of satellite communication equipment.

MINI-CIRCUITS

Based in Brooklyn, has been a pioneer in lowering the cost of microwave components. They are noted for being able to supply large quantities of affordable components on a world-wide basis.

HAZELTINE (now part of BAE Systems)

Was founded in 1924 and made major contributions to the early development of radio. During WWII, it developed some of the earliest microwave IFF transponders for the US Navy. It still is a leading supplier of IFF systems.

WHEELER LABORATORIES

Was founded in 1946, by Harold Wheeler, a distinguished Hazeltine employee . It made many contributions to microwave antennas , antenna arrays and feed networks related to missile tracking and guidance radars. Wheeler's papers in the MTT Transactions of May 1964 and March 1965 on planar transmission lines are classics. Wheeler received the IEEE Medal of Honor and the Microwave Career Award.

CONCLUSION

This was a brief summary of past accomplishments and current activity on Long Island. As you can see, we made contributions from the very beginning and continue to do so. I am confident, that a similar article written ten years from now would have many other examples to add.

JUNE 2018

June 6, Wednesday

The Cradle of Aviation Museum & the IEEE LI Section PACE Network:

"*Flying Jenny*" Book Signing and Talk with Author, Theasa Tuohy

Cradle of Aviation
Charles Lindbergh Blvd,
Garden City, NY 11530

7:30 PM - Lecture

June 7, Thursday

The IEEE Consultants Network of Long Island (LICN) Meeting:

LIU-Post Campus
720 Northern Blvd,
Brookville, NY.

6:30 PM - Refreshments
7:00 PM - Lecture

June 19, Tuesday

The Long Island Chapter of the IEEE EMC Society lecture:

Selecting an EMI Filter

Retlif Testing Laboratories
720 Northern Blvd, Brookville, NY

Speaker: Curtis Sober, *TE Connectivity*

6:00 PM - Food & beverages
6:30 PM - Presentation

WELCOME NEW MEMBERS TO OUR SECTION

The IEEE Long Island Section is proud to welcome 86 new members to our Section! We are excited about getting to know them & seeing the contributions they can make to our Section and how our Section can enhance and enrich their careers. In addition, we would like to congratulate all of our new members on joining our IEEE family!

FULL NAME	IEEE CURRENT GRADE
Tariq Abdullah	Member
Joseph Benjamin Abel	Member
Robert Adelson	Student Member
Aju Alex	Graduate Student Member
Jacob Anderson	Student Member
Jennifer Bendersky	Student Member
David Leonard Berger	Associate Member
Michelle Blum	Student Member
Erik Bracamonte	Student Member
Nick Bragman	Student Member
James Caceres	Member
Danielle Calderaro	Student Member
Brandon A Carrier	Student Member
Hyun Soo Choi	Student Member
Shadman Chowdhury	Student Member
Koray Alp Cicek	Student Member
Michael Cortese	Student Member
Isadora Costa	Student Member
Samantha Cusano	Student Member
Christopher Dubois	Student Member
David Durst	Member
Steven Forte	Student Member
Dylan Fredericks	Student Member
Sarah Elsie Georges	Graduate Student Member
Seyed Hamed Ghavamnia	Graduate Student Member
Klearko Goro	Student Member

FULL NAME	IEEE CURRENT GRADE
Eric Grant	Student Member
Robert L. Greenberg	Member
Gerik Guo	Student Member
Himanshu Gupta	Memberber
Anna Gura	Graduate Student Member
Ubaid Ullah Hafeez	Graduate Student Member
Richard Hamburg	Member
Morgan Herrman	Student Member
William Hertlein	Member
Jing Huang	Graduate Student Member
Azhar Ilyas	Member
Hasol Im	Student Member
Amir Javan-Khoshkholgh	Member
Matthew Johnson	Graduate Student Member
Andrew Katzman	Student Member
Hyungjoon Koo	Graduate Student Member
Dawson Kopp	Student Member
Rui Liu	Graduate Student Member
Stephen Laguerra	Student Member
Yehonathan Litman	Student Member
Maria Lopez	Student Member
Erik Loscalzo	Student Member
Michael Shane Lovell	Member
Jun Ma	Member
Najmeh Miramirkhani	Graduate Student Member
Philip Mauser	Member

FULL NAME	IEEE CURRENT GRADE
Da Mei	Member
Michiko G Minty	Member
Charles Murphy	Student Member
Montana Musillo	Student Member
Naresh Nandakumar	Graduate Student Member
Minh Hoai Nguyen	Member
Kevin ODonnell	Member
Marcelo Ortolan	Member
Brian M. Peters	Student Member
Gregory Petrillo	Student Member
Matthew Pierre-Louis	Student Member
John Pomeroy	Member
Shawn Pottorf	Member
Mohammad Harun Rashid	Graduate Student Member
Christopher A Reed	Student Member
Ronald Yordan Rivera Orna	Student Member
Luis Alejandro Rodriguez	Student Member
Mousumi Roy	Graduate Student Member
Timmy Rubino	Student Member
John Santini	Member
Madison J Schaefer	Student Member
Alexander Schwartz	Student Member
Deanna Lynn Scotti	Graduate Student Member
Anthony Spinthourakis	Student Member
Niki Taylor Taheri	Student Member
Erik Talley	Member
Milan Toma	Member
James Harry Toomajian	Member
Kunal Wadhwa	Graduate Student Member
Garfield Watson	Student Member
Fran Xiao	Student Member
Ryan Young	Student Member
Pengyue Zhang	Graduate Student Member
Brian Zilli	Student Member

THE IEEE LONG ISLAND SECTION AT AGE 65

Jesse Taub
IEEE Long Island Section Historian

It is hard for me to believe that our Section is now 65 years old. In 1953, I was already an engineer with four years of experience. It does not seem to be that long ago. I would like to present some of my recollections of those days and some highlights of the ensuing decades.

In the 1950's some of the most prominent Long Island companies in our field were Hazeltine (now part of BAE Systems), Sperry Gyroscope, Airborne Instruments Laboratories (AIL) now part of Harris and Wheeler Laboratories Most of the electronics developments were defense related because of the Cold War. The transistor was only recently invented. This was the era when major improvements were made in microwave receiver sensitivity due to the invention of the parametric amplifier and the MASER (the device that led to the invention of the LASER in 1960). The improved sensitivity contributed to increased radar range and a major expansion of radio astronomy receiver development. Color television was getting closer to being a commercial product. Long Island companies were active in all of these areas.

The 1960's was the decade where electronics went into space. The Lunar Excursion Module (LEM) developed by Grumman most exemplified this era. Long Island was a major center of aerospace activity with companies such as Republic, Fairchild, as well as Grumman prospering. Main frame computers were just beginning to be used by design engineers.

Satellite communications was a major growth area in the 1970's. Long Island companies such as AIL and LNR supplied sensitive receivers for earth stations and satellites. The rapidly increasing computer processing power also brought with it the need for more sophisticated software. Companies, such as computer Associates, were major contributors.

The 80's decade saw the emergence of the PC and engineers' strong dependence on them. I had been relying on main frame computers for years and suddenly found the nearly obsolete for most engineering problems. Many engineers wrote their own programs but eventually design software packages on the commercial market became ubiquitous.

The 1990's was a period of major improvement in computer speed and power. Thanks to major advances in electron beam lithography, feature sizes of transistors were becoming less than 100 nanometers. Millions of transistors could now be placed in a chip. It was also the era where gallium-arsenide IC technology was allowing complex microwave components to be placed in a small chip. These developments helped to make satellite TV commercially possible. Fiber Optic transmission of wide information bandwidths over long distances also matured during this period.

The first 18 years of the 21st century was dominated with the arrival of the smart phone. Communication band widths continue to increase as exemplified with the soon to be viable 5G communications systems. We are also living in an age where alternative reusable energy sources such as solar and wind are starting to compete with fossil fuels. Driverless cars are also coming soon. Look forward to wear bio-medical devices that will monitor your health and send data to your doctor.

Along with helping our members keep up with technical innovations, our Section has been very active in operations of the IEEE at many levels. Henry Bachman and the late Joel Snyder were IEEE Presidents. We have had six Region 1 Directors – the late Art Rossoff, Lou Luceri, Vic Zourides, Joel Snyder, Peter Eckstein and Babak Beheshti. Edwardo Palacio just became Region 1 Director Elect. Peter Eckstein served as IEEE USA President.

Our Section was one of the earliest to be involved with professional activities in areas of interest to IEEE members. It organized a political action committee many years ago, PACE, which still exists. We, along with a California section, were instrumental in changing the wording in the IEEE Constitution from a "Technical Society" to a "Professional Society". We were the first section to form a Consultants Network thanks to the efforts of Bill Wilkes and the late Irwin Weitman.

Throughout these 65 years our Section has been a great resource for its members in keeping up with these advances. A perusal of past issues of our Pulse newsletter lists the numerous meetings and symposia that have helped to keep so any of us current I, for one, am grateful to our Section for this.

It is hard to predict electrical and electronic advances that can benefit society 65 years from now. However, due to increased life expectance, some of our younger members will be around to see them. Let's wish the IEEE Long Island Section a Happy 65th Birthday and much success from now and in the future.

420,000+ members in 160 countries.
Embrace the largest, global, technical community.

People Driving Technological Innovation.

ieee.org/membership **#IEEEmember**

IEEE

KNOWLEDGE COMMUNITY PROFESSIONAL DEVELOPMENT CAREER ADVANCEMENT

REVIEW: LISAT 2018

Dan Rogers
Co-Chair,
LISAT Conference

The IEEE Long Island Section sponsored the **14th Annual Long Island Systems, Applications, and Technology Conference (LISAT)** was held on May 4, 2018 on the campus of Farmingdale State College. This academic conference is one of the principal services that the IEEE provides to the local industrial and academic engineering community. This conference benefits local scientists, career engineers and students who wish to advance the state of technology by publishing original papers. It also provides an opportunity for exhibitors to educate the local engineering community about the benefits of their products to individual engineers by meeting them in the exhibits hall.

Dr. John Nader, President of FSC spoke at the Opening ceremony in Roosevelt Hall. The conference and the Farmingdale College Foundation collaborated in providing 10 student scholarships this year. Note that there have been 95 scholarships provided to students since the LISAT conference began in 2005, for a total of $45,500 in joint student scholarship support.

The conference provides a venue for peer reviewed original papers to be presented to the engineering community. Our slate of papers included the IEEE LISAT Technical Program Committee's 30 selected paper presentations. In addition, three Distinguished Lecturers (DLs) provided state of the art presentations in the areas of their technological expertise.

THE DISTINGUISHED LECTURERS PRESENTED IN 3 SPECIAL SESSIONS:

SYSTEMS:

DL. Fawzi Behmann, *"The Future of Collaborative Internet of Things"* and invited speaker **Dr. Robert Balfour**, VCORE Solutions, "*Software-as-a-Service (SaaS) Situational Awareness for Safety, Security and Emergency Response"*

APPLICATIONS:

DL Dr. Larry Chasteen, *"National Missile Defense for our Applications"* and invited speaker **Warren Axelrod,** *"Cybersecurity and Privacy Issues when Applying Railway Technologies to Intelligent Roadway Systems"*

TECHNOLOGY

DL Dr. Lorenzo Lo Monte, *"History and Future of Radar and EW"* and invited speaker **Dr. Miriam Rafailovich**, *"Engineering High Durability, Carbon Monoxide Resistant Hydrogen Fuel Cells"*

This year our Power and Energy Society/Industry Applications Society (PES & IAS) Chapter leadership again co-hosted a Professional Development Track for PE's and others requiring CEUs or PDH credits on topics of "Microgrid Environments" by Maggie Clout, Business Manager, Energy Management Division, Siemens Industry, Inc.; "Digital Substations" by Darius Parker, Business Development Manager, Energy Management Division, Siemens Industry, Inc.; and "Relay Protection in a Smart World" by Tom Ernst.

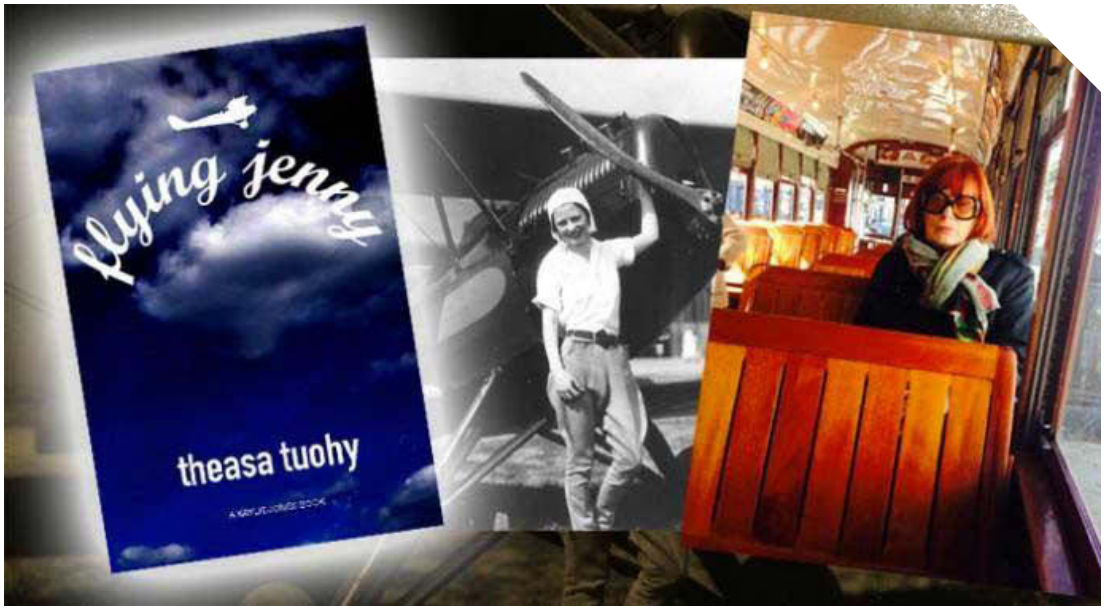
We were also delighted to have ANSYS provide a Product Applications presentation – "Cosite Interference and RFI in Real World Environments through Multi-Fidelity Simulation" by Charlotte Blair, ANSYS Lead Application Engineer.

The conference is fully staffed by volunteers from both the IEEE Long Island Section and Farmingdale State College. Dr. Charles Rubenstein (Chair of the LISAT Conference) said in his opening message: "My welcome message would not be complete without thanking the core volunteers that worked tirelessly to bring LISAT to you who are listed on the previous page. Co-Chair Dan Rogers is my right-hand and doubling as exhibits chair, Ron Pirich and Jesse Taub oversaw the 30 papers in our technical program. And through the tireless efforts of John Fiorillo and Doug Kim many Farmingdale State colleagues - from the President's office and vice president for institutional advancement and enrollment management Patrick Calabria and staff, Nancy Connor VP Development and Alumni Engagement and staff, the School of Engineering Technology interim dean, Michael Goodstone, Use of Facilities Coordinator Joanne Ulrich, Scholarship Coordinator Babette Kastens, custodial, IT and catering personnel, to Chief Fischer's Campus Police have made many "invisible" contributions that cannot be underestimated. My personal Thank You! to all of you that made this year's conference possible!"

If you speak with the members of the LISAT committee, they will all tell you that the experience of volunteering and participating in the management of a conference is challenging but has many rewards. I would encourage all IEEE Long Island Section members to consider volunteering for next year's conference, which will be the 15th Annual LISAT on Friday, Mary 3rd, 2019. We could use the help to make this important anniversary conference the best yet.

The Cradle of Aviation Museum and the IEEE LI Section PACE Network (Professional Activities Committees for Engineers) are proud to present:

"FLYING JENNY" BOOK SIGNING and TALK with AUTHOR, THEASA TUOHY



DATE:
Wednesday,
June 6, 2018

SPEAKER:
Theasa Tuohy,
Author

LOCATION:
Cradle of Aviation
Charles Lindbergh Blvd,
Garden City, NY 11530

TIME:
7:30 PM
Presentation

COST:
Free Admission

ABSTRACT:

The Cradle of Aviation Museum and the IEEE LI Section PACE Network are proud to present "Flying Jenny" book signing and talk with author Theasa Tuohy at the Golden Age Gallery as the backdrop for this lively talk and book signing.

"It is August, 1929, and this romp through the early days of women's aviation history arrives with all the immediacy of a late-night edition. Theasa Tuohy memorably limns the adventures of not one but two pioneering women. Debutante pilot Jenny Flynn and cub reporter Laura Bailey carry the spunk of Thelma & Louise to new heights as they fight for space in the cockpit and the city room."

Janet Groth, author
The Receptionist: An Education at The New Yorker

SPEAKER:

Theasa Tuohy, author, will be signing her new novel about the early history of aviation and women in aviation on Long Island and across the nation. "Flying Jenny" is her second novel and it is based loosely on her mother's spirited life as a pioneering pilot in the early 1930's. Ms. Tuohy was the first woman hired on the copy desk of the Newark Star Ledger and a long-time editor of the Associated Press as well as a journalist at Newsday. She is an esteemed journalist who was one of the pioneers of the industry for women, which makes her a great role model for young women today. Books will be available for purchase in our museum store.

REGISTRATION:

This event is FREE, but reservations are required.
Please call **516-572-4066** (Mon-Fri, 10:00 am - 4:00 pm) to reserve your seat.

The Long Island Chapter of the IEEE EMC Society is presenting a lecture titled:

SELECTING AN EMI FILTER

DATE:
Tuesday, June 19, 2018

SPEAKER:
Curtis Sober, TE Connectivity

LOCATION:
Retlif Testing Laboratories
795 Marconi Avenue,
Ronkonkoma, NY

TIME:
6:00 PM - Food and beverages
6:30 PM - Presentation

COST:
Free Admission.
All are invited.

WHO SHOULD ATTEND?

Individuals interested in learning about EMI Filters and their applications.

ABSTRACT:

In this talk, EMI line filtering fundamentals are introduced. To inform of the many varieties are available, when and what types of EMI line filters is required for particular applications.

REGISTRATION:

Seating is limited. If you wish to attend, an RSVP is required prior to the meeting. To register please visit IEEE vtools at ***https://events.vtools.ieee.org/m/173009***

SEMINAR COORDINATORS:

Mr. Donald Lerner, Retlif Testing Laboratories.
Mr. Sandy Mazzola, BAE Systems Inc (Greenlawn).

EMC SOCIETY

SPEAKER:

Curtis Sober received his BA degree from Pennsylvania State University. He has worked at TE Connectivity, (formally AMP Incorporated) for 24 years and is recognized the go to person for EMI filters having been involved with the Corcom team for the past 16 years. He is responsible for the TE Corcom sales from Eastern Canada to Florida. Curtis has worked in the electronics, telecommunication, broadband and power industry since 1980 holding sales, management and marketing positions with companies including, EI DuPont, (DuPont Berg), Molex, ASC Capacitors and now TE Connectivity, Corcom products. He has presented various interconnect, grounding/ bonding and EMI filter papers to customers, test labs and professional societies. He is currently focused on EMI issues and has helped to create the presentation, Selecting an EMI Filter. His current technical interests include the design/ development of systems and finding ways to help the customer systems pass the existing regulatory standards.

2018 IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM

JUNE 10-15, 2018

It's Taking Off! Can You Handle 5G?

Register for the **5G Summit** at **IMS2018**

5G SUMMIT

Driven by emerging new applications and capabilities, technologies and systems for 5G and beyond are now presenting unique research and development opportunities to university and industry researchers. The IEEE Microwave Theory and Techniques Society (MTT-S) and the IEEE Communications Society (ComSoc) have been working together to organize a special joint 5G Summit at the **2018 MTT-S International Microwave Symposium (IMS2018)**, 12 June 2018, with expert speakers covering both the hardware/systems and networking/services aspects for the fifth-generation (5G) communication. As part of the 5G Summit series (details at **www.5GSummit.org**), this summit will provide a platform for leaders, innovators, and researchers from both industrial and academic communities to collaborate and exchange ideas regarding this emerging technology that may help drive the standards and enable rapid deployment.

The 5G Summit at **IMS2018** is part of a special collaboration that complements the MTT-S's "hardware and systems" focus with ComSoc's "networking and services" focus. To fully integrate this special 5G Summit into the Microwave Week 2018 program, the summit will be held on **Tuesday, 12 June 2018**. Attendees will be able to register for the 5G Summit using the IMS2018 registration site. The 5G Summit will be complemented by a 5G Demo Forum on the exhibition floor. The **5G Summit** program will feature top experts from industry, academia, and government who will share knowledge and discuss strategies and solutions with summit attendees.

Other featured presentations from Huawei, GM, Keysight, NI, Global Foundries, MACOM as well as academia will include following topics:

- Spectrum/Regulatory
- Infrastructure/Trials, Applications
- Technologies, Circuits, Systems
- Design, Test & Measurement Challenges
- Test-bed Services for 5G

Lunchtime Panel session on, ***"mmWave Radios in Smartphones: What they will look like in 2, 5, and 10 years"***

5G SUMMIT SPEAKERS

Jin Bains,
Head of Connectivity, SCL, Facebook
"Bringing the World Closer Together"

David Lu,
Vice President, AT&T
"AT&T Perspectives on 5G Services"

IEEE 5G SUMMIT

IEEE MTT-S

For more information or to register, go to **http: //ims2018.org/5g-summit**

IEEE★USA presents:

FUTURE LEADERS FORUM

July 26-28, 2018 | Austin, Texas | futureleaders.ieeeusa.org

KEEP AUSTIN WIEEE RD!

Whether you were with us or not for the inaugural Future Leaders Forum in New Orleans, you won't want to miss the 2018 Future Leaders Forum, 26-28 July 2018 at the University of Texas - Austin. The program for this summer's Forum is taking shape, and will focus on four themes:**Lead**, **Empower**, **Adapt**, and **Design**.

NOTABLE SPEAKERS

Steve Sasson
Inventor of the Digital Camera

Maxim Jago
Film Director, Futurist, Author

Larry Hornbeck
Creator of DLP, Emmy and Oscar Winner

Chelsea Collier
Founder, DigiCity

Chef Patrick Stark
Philanthropist, Chef, Musician, Mohawk Madman

Hannah Rose Marie
Image Consultant

Network, make friends, and grow your professional community while learning about the culture and historical significance of Austin, and the state of Texas, during our fun and interactive evening events.

...and many more! Check out our website for full details!

IEEE★USA

IEEE

IEEE AUTOTESTCON 2018

September 17-20, 2018 ★ National Harbor, Maryland

Gaylord National Convention Center

ORGANIZERS

Technical Program Chairman
Dave Kaushansky
Teradyne
david.kaushansky@teradyne.com

Technical Program Co-Chairs
Mike Seavey
Northrop Grumman
michael.seavey@ngc.com

Jeff Murrill
Northrop Grumman
jeffrey.murrill@ngc.com

General Chairman
Bob Rassa
Raytheon Company
RCRassa@raytheon.com

IMPORTANT DATES

April 2, 2018
Abstracts Deadline

IEEE
Sponsored by IEEE Aerospace & Electronic Systems Society, and IEEE Instrumentation & Measurement Society

IEEE INSTRUMENTATION & MEASUREMENT SOCIETY®

AESS®
IEEE Aerospace & Electronic Systems Society

CALL FOR PAPERS

AUTOTESTCON is the world's premier conference that brings together the military/aerospace automatic test industry and government/military acquirers and users to share new technologies, discuss innovative applications, and exhibit products and services. It is sponsored annually by the Institute of Electrical and Electronic Engineers (IEEE).

AUTOTESTCON will be held at the Gaylord National Convention Center in National Harbor, Maryland on September 17-20, 2018. The technical program for AUTOTESTCON 2018 will be determined by the interests of those participants submitting for publication, presenting a technical paper or organizing a technical session. Papers and sessions should cover appropriate topics dealing with system readiness and automatic test technology in particular.

KEY TOPICS

Performance Based Logistics | Health Monitoring & Diagnostics | Embedded Instrumentation | Cyber Security | Test & Support Management

- Test Program Set Development
- Prognostics
- Flexible Sustainment
- Organizational Level Test
- Design-For-Test/Built-In-Test
- Fault Tolerant Systems
- Legacy ATE Challenges
- Future Logistics Support Concepts
- Contractor Logistics Support
- Maintenance Repair & Overhaul
- Multinational Integrated Support
- Commercialization of Military Maintenance
- Support Economics
- CMMI Application to ATE/TPS Development
- DMSMS Approaches
- Organizational/Intermediate/Depot Level Maintenance For The Future
- Next Generation Test Systems
- Spiral Development and Evolutionary Acquisition
- Test Requirements Definition and Verification
- Factory and Development Test
- Software Testing and Research
- Development in Instrumentation and Measurement
- Cable Network Testing

Abstracts are to be submitted to the Abstract Management website no later than February 16, 2018, at http://edas.info. Questions and Session proposals should be addressed to the Technical Program or General Chairs. PLEASE NOTE: For each paper per registration in excess of one, an additional paper fee of $50 will be charged.

http://2018.autotestcon.com

Who develops green technologies, video games, rescue robots and more?

Explore the amazing world of engineers—all in one web site…

TryEngineering.org

- **See** the exciting work that engineers do
- **Learn** how engineers make a difference
- **Start** now to prepare to be an engineer
- **Play** online games and challenges
- **Download** free engineering lesson plans
- **Explore** the fascinating FAQ
- **Search** for accredited engineering programs
- **Find** competitions and summer camps

Visit **www.tryengineering.org** today!

Brought to you by: tryscience IBM IEEE

ARE YOUR TO-DO LISTS DOABLE?

BY DONALD CHRISTIANSEN

When a group of engineers began an informal discussion about the uses of to-do lists, the dominant theme seemed to be that such lists don't always work well. Yet most said they continue to use them in some form and often try to "fix" them to be more useful.

Most agreed that we expect our to-do lists to cover too many items, including not just job-related tasks, but also family-related chores and other personal matters, including finances, education, and recreational events. Many agreed that we too often complicate our lists by including short-, medium-, and long-term items. As a veteran user of to-do lists, and having encountered many of their shortcomings, I decided to go online to see what the experts are thinking. No surprise, they identified many of the same issues outlined above and more, and, in their individual discussions, did not necessarily agree on the best solutions.

PROJECTS VS. TASKS

If you are a project manager your to-do list will differ from those of the individual engineers assigned to the project. You may do well to choose one of the project management software apps that deal with task planning and scheduling, collaboration, and progress tracking. Among them are LiquidPlanner, monday.com, Smartsheet, Workamajig, and Workfront Project Management Software. Individual project tasks, on the other hand, are the responsibility of the project engineers. They may be simple, easy, doable in a day, or complex, multistage, requiring days or even months. Tasks may involve hardware or software, or perhaps research. Each project engineer may elect to choose his or her format, and switch to another if it does not work.

TYPES OF TO-DO LISTS

Those who choose to include both job-oriented and personal items in their to-do lists will likely need to deal with a daily list of twenty or more items, and, most likely, only a fraction will be completed by day's end. Some to-do apps permit the separation of these work and personal tasks with a context tag. Or, if you choose to use pen and paper (e.g., 3-by-5 cards, as I do), you can create separate lists and thus avoid referring to your personal list while on the job.

There is still another good reason to consider using separate lists for work, home chores, and entertainment. In our quest to check off several items each day using only a single composite list, it is easy to be lured into choosing a fun item we know we can easily complete (the daily crossword puzzle, or something possibly even more tempting, like "Use Burger King coupon"). In today's work-at-home environment, these choices are easier to make. If you do opt for using a single list, one expert advises giving each item a priority (say 1 to 4) to encourage you to tackle the most pressing items first. Whether you use single or multiple lists, it will help to include only items that are readily doable and likely to be done. An item like "Research Cyber Security" is a loser. Instead, make it "Read cyber security article ABC in IEEE Trans on XYZ, April 2080." Another item to ban from your daily list is "Continue to work on subsystem X." Instead, pick just one task from a list of likely next steps in the subsystem project.

CONTINUED ON PAGE 18 ▶

ARE YOUR TO-DO LISTS DOABLE?

CONTINUED FROM PAGE 17

SCHEDULES VS. TO-DO LISTS

If you are part of a very large, ongoing project, you may elect to use a separate project schedule that includes task details and target completion dates, and thus keep everything involving that project off your daily to-do lists. Instead, you would put the daily project tasks directly on your calendar, with a particular time allotment for each. Its proponents admit that you may have to carry over a task or two to tomorrow that you failed to complete today, just as you must with your to-do lists. Forbes consultant Keven Kruse, an advocate of schedules versus lists, notes that "That which is scheduled actually gets done." He recommends that we schedule everything. For example, instead of checking e-mail every five minutes, he suggests a specific schedule of three times daily for e-mail processing.

NAMING YOUR TO-DO LISTS

Should you elect to follow the advice of several of the experts, you will no longer label your lists simply "to-do." Here are a few choices: Do-Today, Do-Now, Do-ASAP, Just-Do-It, DDALP (Delay Doing As Long As Possible), DSM (Do Something/Maybe), and, finally, Fuggedaboudit. The last three may help relieve the stress of carrying certain items on your daily to-do list seemingly forever.

PRIORITIES

Given a list in which all entries are "do today," which ones should be tackled first? Those involving safety issues, error recognition, and fault corrections are prime contenders. Plus those involving customer complaints in general. Items left undone with predictable consequences, like "repair emergency power generator," are obvious do-first candidates.

DONE "DO's"

Enough about what needs to be done. What about a Done-It list? Gina Trapani champions its importance, noting that your "done" list is a great indicator of whether your do-do list is working. It also enables you to refer to your past work activities when, for example, you are writing that final report on a particular engineering project, or an article for possible publication in an IEEE technical journal. The "done log" also permits you to "revel in your own productivity" as Trapani phrased it.

RESOURCES:

Allen, D., *Getting Things Done: The Art of Stress-Free Productivity*, Penguin, 2000.

Trapani, G., *Practicing Simplified GTD*, https://lifehacker.com/335269/practicing-simplified-gtd (retrieved Mar. 19, 2018)

Gordon, W., *Back to Basics: How to Simplify Your To-Do List and Make It Useful Again,* Lifehacker (retrieved Mar. 30, 2018)

Trapani, G., and **Dash, A.**, *Lifehacker: The Guide to Working Smarter, Faster, and Better*, Wiley, 2012.

Kruse, K., *Millionaires Don't Use To-Do Lists*, https://www.forbes.com/kevinkruse/to-do-lists-time-management (retrieved Mar. 31, 2018)

Printable To-Do Lists and Task List Templates, https://www.vertex42.com/ExcelTemplates/to-do-lists.html (retrieved Mar. 17, 2018)

Donald Christiansen is the former editor and publisher of IEEE Spectrum and an independent publishing consultant. He is a Fellow of the IEEE and a Long Island Section member. He received the Section's Lifetime Achievement Award in 2016 with the citation: "*For a lifetime of service to the engineering profession as the long-time editor and publisher of IEEE Spectrum, numerous papers including engineering ethics, and originating the Micromouse competition*" Don can be reached at **donchristiansen@ieee.org**

Reprint courtesy of IEEE-USA Insight.

GET THE MOST FROM YOUR NEXT SALARY NEGOTIATION

Tips on initiating a conversation with your manager and articulating your value

BY ANTHONY GOLD

Reprint courtesy of I**EEE The Institute**

Here's a painful yet common occurrence: You discover that a coworker who doesn't seem to work as hard as you do (or as well) earns a higher salary—perhaps a lot higher. Or maybe you feel stuck: You think you've brought a lot of value to the company, but your manager isn't offering a raise or promotion. *What should you do?*

GET OFF ON THE RIGHT FOOT

First, here's what you shouldn't do: Tell your boss about the pay disparity or blurt out that you're not making enough and want a raise. That not only creates an awkward situation but also puts your manager in the defensive position of justifying one person's salary over another's. There very well might be legitimate reasons for the difference. For example, if you're comparing your earnings to someone else in a similar position, that person might have negotiated a higher starting salary. You, on the other hand, might have accepted what was offered when you joined the company. Instead, first validate from outside sources that your salary is indeed below where it should be. Glassdoor, Salary.com, and other websites can make it easy to gather that information. Then, ask for a meeting with your manager. At the meeting, start by articulating the value you bring to the company. You should discuss your accomplishments and the effect they have had. That might be time saved, revenue increased, costs cut, the impact you've had on the company's brand—things that truly matter to the business. Follow that up with positive comments about why you like working for the company and, in particular, for your manager. And then say something like this: "One thing is troubling me. I feel that, given my role and the impact my work is having, I'm undercompensated. And I'd really like your help so that we can address this."

THE POWER OF SILENCE

A successful salary renegotiation always starts with your knowing at least two points: You're being paid less than your market value, and your accomplishments are having a positive effect on the company. If this holds true, you'll find your salary renegotiation is simpler than otherwise. A great way to get a raise or promotion is first to elaborate clearly the difference you're making, as well as your desire to contribute even more to the organization. Then ask for the amount you want, but phrased in a way that makes it clear the increase will enable you not only to be more motivated but also to have an even greater impact. Your manager will either agree to look into

CONTINUED ON PAGE 20 ▶

GET THE MOST FROM YOUR NEXT SALARY NEGOTIATION

CONTINUED FROM PAGE 19

your request, or she'll say she can't offer you a raise at that time. No matter how your manager responds, say nothing. That can be hard because silence feels awkward. But silence can be useful: be silence is begging to be filled, and your manager will fill it. She may come back with a willingness to explore your situation further, perhaps meet you halfway, or with a justification for why the company cannot increase your salary—all of which can be helpful.

If it's a justification for why the company can't pay you more (for example, the salary budget is fixed and no money is left) then that information can lead to the two of you brainstorming other ways to address the issue—with a performance bonus, say, or extra vacation time.

The conversation also might lead to a discussion about whether you are on the right path to a promotion and what you must do to get there. *Following that, here are questions you can ask to help move the discussion forward:*

- What is the salary range for someone in my position, and is that range fixed?
- Have exceptions been made, and if so, what qualities did that person have?
- What skills and level of responsibility are required for the next pay grade?
- If a salary increase is not an option at this time, can we negotiate other benefits, such as vacation time?

These questions can promote a discussion that not only will help you better understand what's going on in your company but also help you develop a better rapport with your manager.

A TWO-WAY STREET

Here's another question—perhaps the most powerful one—that can truly help create a collaborative environment for moving the discussion forward: "How can we close the gap?" The gap refers to the space between what you feel is fair and what the company is offering. Note the focus is on we. This is the core of collaborative negotiation. Within this framework, there are no winners or losers—just you and your manager figuring out ways to create a win-win situation. Remember, the company wants and needs you. It wouldn't have hired you, or continued to employ you, if that weren't the case. A collaborative negotiation is a way to and a solution that keeps you motivated while remaining within the company's budget. And remember that salary is just one piece of the puzzle. You also can consider perks such as extra time off, flexible hours, or incentive pay (for achieving certain milestones in a given time). If the company won't budge on any of your requests, and you still want to work there, ask for a review in six months to assess your contributions. Be sure to ask what you would need to accomplish in those six months to warrant an increase.

Anthony Gold *is a career coach, entrepreneur, investor, and philosopher who recently cofounded ROAR for Good, a social-impact company in Philadelphia developing smart jewelry to reduce assaults and empower women. He is also a regular blogger for The Institute.*

Reprint courtesy of I**EEE The Institute**

What is an Electrical Engineer?

Did you know that electrical engineers are involved in creating cell phones, lasers, the Internet, PDAs, hybrid cars, video games, and satellite TV? Technologies developed by electrical engineers have enriched our lives in countless ways and revolutionized our daily environment.

Electrical engineers gave the world modern virtual reality and spanned power distribution networks across vast rural areas in developing countries. Electrical engineers develop new pacemakers for ailing hearts, ultrasonic diagnostic devices for detection of tumors, and NMR machines. They provide secure and reliable communication to expeditions in remote and dangerous locations and to astronauts in space. They are responsible for numerous household and personal items, from your electronic wristwatch to your iPod.

Electrical engineers work in multimedia, telecommunications, electric power, signal processing and control. They work with physicians on new diagnostic devices and with urban planners on new efficient vehicles. Their work makes our lives more interesting, effective and safe, and increases our productivity and standard of living.

ELECTRICAL ENGINEERS WORK ON AEROSPACE VEHICLES, AERONAUTICS and AVIONICS

Many designs of airplanes and aircraft are undergoing dramatic transformation. Subsystems that depended in the past on bulky mechanical and hydraulic devices are replaced by small electronic circuits and high density computer chips. Better and smaller sensors, digital control units and "computers on a chip" make airplanes lighter, more capable and safer. Electrical engineers are at the forefront of this transformation, and new technologies keep making their professional life more exciting. Some of these new technologies include Nanotechnology, Mechatronics, and MEMS (Microelectromechanical Systems).

"I came into a group that did a lot of the fun things that I like to do. I like to work with people; I like to travel a little bit. And so I've lucked out. I am responsible for procuring generators, contractors, and control units, the main sources of electrical power on an airplane."

Carolyn Kerr, Electrical Systems Engineer,
Boeing Commercial Airplane Group

CONTINUED ON PAGE 22

CONTINUED FROM PAGE 21

ELECTRICAL ENGINEERS WORK WITH COMPUTERS AND SOFTWARE

Computers and software are everywhere—in our cars, embedded in bridges and roads, installed in the bodies of patients to regulate biological mechanisms, and integrated into ID cards and passports. Electrical engineers are involved in the design and manufacture of these devices, and often (as computer or software engineers) they take part in creating the scripts that control these devices and determine their capabilities. Many electrical engineers are engaged in writing computer code and testing and debugging it, to ensure that it works according to specifications and that its operation is predictable, error free and safe.

"I'm a software engineer and it's cool. They stick me in a lab or office with tons of toys—computer gadgets. I get to play with them all day…and they pay me for it. It's a bit of cloak and dagger atmosphere."

Wesley Driver, Software Engineer, Harris Corporation

CAREERS WITH OPTIONS

Electrical engineering—and its closely related fields (electronics engineering, power engineering, telecommunications engineering, computer science, computer engineering, and control engineering)-provide career opportunities in many industries and branches of business. There are electrical engineers in manufacturing plants, control rooms of large petrochemical plants, monitoring rooms of space flights, and hospitals. Here are some of the challenges that electrical engineers of the future are likely to be taking up.

AN EARLY START

Education, interest, training, and experience lead the way to a career in electrical engineering. Throughout high school, students can begin preparing for an engineering career by laying a solid academic foundation. Taking courses in mathematics, science, and communication can be very helpful for future study of engineering at a university and should include: Algebra, Biology, Business Writing, Calculus, Chemistry, Computer Science, Electronics, Geometry. Physics, Public Speaking, and Trigonometry.

"In high school I got into computers and tried my hand at programming. It's been surprising how applicable a lot of the seemingly abstract math and science concepts taught in high school have been in my engineering career."

Jeff Cannon, Telecommunications, Engineer, ADC Telecommunications

FIELD	ACTIVITY EXAMPLE
Aerospace and Aeronautics	Develop new sensors, control systems and power supplies for the next generation of space vehicles
Communications	Develop new networks that allow instant unlimited voice and audio communication with anyone, anywhere, anytime
Transportation	Develop remote control cars that can be driven automatically on "smart highways"
Medicine	Develop new sensing and drug delivery techniques that allow diabetics to regulate their blood sugar levels without injections
Homeland Security	Develop imaging techniques that allow error free detection of all explosive devices within 10 kilometers of an airport
Entertainment	Develop new multimedia techniques to enhance visual, smell, and tactile effects in concerts and on the Internet
Power	Develop a new longer-lasting battery that allows a cell phone to operate for a year without recharging
Robotics	Develop reliable and secure communication methods for special force units operating underground
Military Engineering	Develop smart robots that can detect and locate survivors in earthquakes and accidents
Geosciences and Remote Sensing	Develop highly-reliable networks to detect and predict earth

Taking an active role in extra-curricular activities can enhance classroom studies by providing hands-on experience with engineering design and practice. Such activities include: competing in science and technology fairs; robot, rocket, and other design competitions, and active membership in engineering clubs.

CONTINUED ON PAGE 23

CONTINUED FROM PAGE 22

The following competitions are representative of the many opportunities available to students who wish to explore engineering:

Botball – *www.botball.org*
A hands-on learning experience in robotics designed to engage students in learning the practical applications of science, technology, engineering, and math.

BEST Robotics – *www.bestinc.org*
A sports-like, science- and engineering-based robotics competition.

FIRST Robotics – *www.usfirst.org*
An exciting, multinational competition that teams professionals and young people to solve an engineering design problem in an intense and competitive way

JETS – TEAMS and **NEDC** – *www.jets.org*
TEAMS challenges groups of high school students to work together and apply key math, science, and physics concepts toward solving real-world engineering scenarios. NEDC is a hands-on competition that allows students to explore, research, design, and build a working prototype to empower individuals with disabilities to succeed in the work force.

Odyssey of the Mind - *www.odysseyofthemind.com*
An international educational program that provides creative problem-solving opportunities for students from kindergarten through college.

Intel International Science and Engineering Fair - *www.sciserv.org/isef/*
The world's largest pre-college celebration of science.

Think Quest Programs - *www.thinkquest.org*
Students work in teams to create the best educational websites and compete for exciting prizes, including a trip to ThinkQuest Live, an educational extravaganza celebrating their achievements.

"Some non-engineering courses that have proved to be helpful are management, business, and entrepreneurship classes. I also took a psychology class on behavior and personal adjustment which I use almost every day. It teaches you about people and about your behavior with people. These are very important because you're working with a team, and you need to understand how to deal with other people."

John Harding, Hardware Dev. Engineer,
Hewlett Packard Company

ACADEMIC STUDIES

Most electrical engineers begin their career by earning a Bachelor of Science (B.Sc.) degree in electrical engineering or a closely-related field (electronics, power, control, telecommunication or computer engineering; or computer science). The B.Sc. degree usually requires 4-5 years in an undergraduate program at an accredited university. A Bachelor of Science degree in electrical engineering or closely-related disciplines expands career options and can open the door to other professions. While many graduates of electrical engineering programs spend their entire career working on technical and engineering projects, others continue their education in other diverse areas such as law (e.g., patent or telecommunications law), medicine (e.g., development of sophisticated sensors for detection of disease), and business (e.g., using computer algorithms to optimize commodity trading). Those who are inclined to achieve deeper understanding of engineering processes, and want to engage in research and development often continue beyond the B.Sc. degree toward a Master of Science (M.Sc.) in Electrical Engineering, and later toward a Doctor of Philosophy (Ph.D.) or Doctor of Science (D.Sc.)

All prospective students of electrical engineering should seek institutions that are recognized for instruction quality and modern facilities. In many countries there are accrediting bodies (such as ABET in the United States, JABEE in Japan, CEAB in Canada, and ABEEK in Korea) that publish lists of programs they have reviewed and approved ("accredited"). In countries where such accrediting bodies do not exist, some schools carry accreditation or accreditation- like certifications from accrediting bodies in other countries. In the absence of local accreditation, students should in general prefer schools that are recognized by state or local government and are accountable to a local department of education.

CAREER GUIDANCE MATERIALS

TryEngineering.org- *www.tryengineering.org*

JETS- *www.jets.org*

Sloan Career Cornerstone Center- *www.careerconrnerstone.org*

IEEE Pre-university Education Center-
www.ieee.org/web/education/preuniversity/home.html
www.ieee.org/web/education/preuniversity/netresources/brochures.html

IEEE Student Concourse
www.ieee.org/portal/pages/education/faqs/index.html

IEEE MEMBERSHIP and MEMBER BENEFITS

IEEE membership offers access to technical innovation, cutting-edge information, networking opportunities, and exclusive member benefits. Members support IEEE's mission to advance technology for humanity and the profession, while memberships build a platform to introduce careers in technology to students around the world.

JOIN IEEE OR RENEW YOUR MEMBERSHIP

Reach your full potential as part of the world's largest technology community. Join professionals, experts, and advisors who can help shape your career, offer resources to acquire new skills, and advance your professional development.

MEMBER BENEFITS

As an IEEE member, you'll be presented with new resources, valuable opportunities, and many discounts that will help you advance your career in the right direction. You can find colleagues who share your vision and commitment—those who are moving technology forward today.

ENHANCE YOUR MEMBERSHIP- JOIN AN IEEE SOCIETY

IEEE Societies provide members with opportunities to connect with experts and network with colleagues locally and abroad—all while staying up-to-date on technology and trends in their industry.

GIFT OF MEMBERSHIP

IEEE membership delivers access to the industry's most essential technical information and provides networking opportunities both locally and globally. Members have the ability to stay current in their chosen profession, connect with peers, and invest in their future.

MEMBER-GET-A-MEMBER

Consider sharing your IEEE membership experience and get rewarded for doing so. Through the Member-Get-a-Member (MGM) program, IEEE rewards your efforts in recruiting new members. Your local IEEE Section can also benefit.

IEEE.tv

Made possible by IEEE members, IEEE.tv is an award-winning, Internet-based television network, producing special-interest programming about technology and engineering for IEEE members and the general public.

There is no better time to discover all that IEEE membership has to offer. Join now and get membership benefits through the end of 2018, plus save 50% on membership dues.*

WHEN YOU JOIN IEEE, YOU:

- Join a community of over 425,000 technology and engineering professionals united by a common desire to continuously learn, interact, collaborate, and innovate
- Get the resources and opportunities you need to keep on top of changes in technology
- Get involved in standards development
- Network with other professionals in your local area or within a specific technical interest
- Mentor the next generation of engineers and technologists and so much more.

IEEE members can access information on local events and activities by signing in to myIEEE, the members' personalized gateway to IEEE membership. In addition, members can also:

- Access individual Society memberships and subscriptions
- Connect with local IEEE Sections & volunteer leadership
- Find upcoming conferences
- Learn more about individual benefits
- Read the latest news from IEEE, IEEE Spectrum, IEEE Standards News, and The Institute

IEEE VOLUNTEER OPPORTUNITIES

We are working on a number of projects that provide volunteer opportunities and are trying to set up programs that will have real benefit to the volunteers as well.

1. **Mentoring students at Farmingdale State College.**
2. **Mentoring students at New York Institute of Technology.**
3. **Mentoring High School Students at Northport High School for Solar Pathfinder workshop.**
4. **Setting up and participating in Youth Bureau STEM programs.**

At FSC and NYIT, we get to work with bright students trying to make their way in the world. We can pass on to them the lessons learned through our life experience, provide some guidance and put forward pet ideas we would like to see developed. We can have students share and carry forward our ideas and projects we haven't been able to finish ourselves. We do good and gain enjoyable time. And we gain a bit of access to campus facilities. As we meet and interact with faculty, we may be able to sit in on classes and lectures of interest. Through the Northport High School project, we get to learn about and use the Solar Pathfinder equipment as well as guiding interested young people.

With the Youth Bureau STEM programs, we have the opportunity to help and guide young people toward a good life. There are many young people who need good role models and often, just someone to talk to. We can make the world a better place.

If we are good at it, and have measurable success, we could generate proposals to Federal and State entities that support STEM programs and possibly receive awards of sufficient size to provide staff stipends to those who need it. For the younger volunteers, it might open a whole new career path.

I do not view STEM programs as a path to jobs in STEM fields. There just are not enough STEM jobs on Long Island to support current graduates. But I do see STEM knowledge as essential for survival and rational decision making for everyday life in the Modern world.

Let me know of your interest and I can provide specific details. **Bill Wilkes 631-421-0160.**

The Section is inviting you to record your stories and histories in our monthly publication, the *Long Island Pulse*. An article of approximately 300 – 350 words is recommended.

LET US HEAR FROM YOU.

Send your article to: **Pulse@ieee.li**
c.c. Life Member Chair: **life@ieee.li**

life member

IEEE LIFE MEMBERS
*Write for **Pulse**!*

The **IEEE Long Island Section has** held meetings with many of our Life Members and Senior Engineers, in recent months. Your stories and histories in engineering are interesting, inspiring and should be recorded for future generations. You have served your profession for many years, many have served our country in the military, many as engineers fighting the Cold War. The many contributions are the legacy to this new digital age, space age, environmental age and beyond.

WE WANT YOUR STORIES

IEEE
IEEE CONSULTANTS NETWORK OF LONG ISLAND

THE IEEE CONSULTANTS NETWORK OF LONG ISLAND (LICN)

is a nonprofit professional organization affiliated with the Institute of Electrical and Electronics Engineers. Our members include dozens of electrical, electronic, mechanical and software engineers with expertise in over 65 categories of technology and business. All are members of the IEEE and adhere to the IEEE professional codes of ethics.

MEMBER
IEEE L.I. CONSULTANTS NETWORK

PETER BUITENKANT
CONSULTANT

MICROPROCESSOR HARDWARE / SOFTWARE DESIGNS
DIGITAL CIRCUIT DESIGN • TRAINING COURSES

WEBSITE: www.peterbui-consult.com

24 Thorngrove Lane
Dix Hills, NY 11746

VOICE: (631) 491-3414
EMAIL: peterbui@optonline.net

---

(516) 378-0979 ambertec@ieee.org

Ambertec, P.E., P.C.

John Dunn – MSEE, PE

Member IEEE Consultants Network of Long Island

www.licn.org/Profile/JDunn

181 Marion Avenue Merrick, NY 11566

Real Time Embedded - Financial Services - Transit
Architecture - Object Oriented Design - Java - C/C++
Full Stack - Internet of Things - Mobile Applications
Unix/Linux - Windows - Compilers - Communications

Early Electronics

EARLY ELECTRONICS
Hardware / Software Consulting Services

Chris Early, BSEE, MSCS, PE
154 Hempstead Avenue
Rockville Centre, NY 11570

unixdev@ix.netcom.com
Voice: (516) 764-1067
Fax: (516) 764-1124

SIGNALS IN MOTION

Len Anderson
President

Product Development
Software Development
Rapid Prototypes
Data Acquisition
Modeling
Simulations

PHONE: 718-279-3953
FAX: 509-471-6496
E-MAIL: LenAnder@SignalsInMotion.com
WEBSITE: www.SignalsInMotion.com

BODNER & O'ROURKE, LLP
PATENTS, TRADEMARKS, COPYRIGHTS AND RELATED MATTERS

GERALD T. BODNER
PATENT ATTORNEY

425 BROADHOLLOW ROAD, SUITE 120
MELVILLE, NY 11747
TEL: (631) 249-7500
FAX: (631) 249-4508
gbodner@bodnerorourke.com

ADVANCE IN TECHNOLOGY, INC.
Electronic Design — Analog, Digital, RF and Systems

JOHN LIGUORI
CEO, MSEE
631-865-2423

82 Westwood Avenue, Deer Park, NY 11729
www.advance-in-technology.com
JLiguori@advance-in-technology.com

Broad Shoulder Consulting LLC
Electronics, Mechanics, Optics, Software
www.broshoco.com

Special Expertise in Medical Imaging
System Design, Prototyping and Productization
Serving Start-ups and Technology Investors

Dmitriy Yavid
Founder
631-706-4696
dy@broshoco.com

Broad Shoulder Consulting, LLC
Long Island High Tech Incubator
25 Health Science Drive
Mail Box 320
Stony Brook, NY 11790-3350

Fred Katz Consulting, Inc.
93 Steven Place West Hauppauge, NY 11788

Proposals, Contracts & Specification Development
Innovative Creation, Electro-Mechanical
Analog & Digital Circuit/System Design
Wireless, Motion, Occupancy Sensors
System Analysis/Documentation
Commercial/Military Product Design
Sonar Systems and Acoustic Signal Processing
Security, Marine & Energy Saving, ROHS, UL Testing
Clever Inventions, Algorithm, IP & Patent Development

fred@fredkatzconsulting.com www.fredkatzconsulting.com

Fred Katz
President
(631) 724-7702
Electronics Consultant

Memberships: IEEE Senior Life Member, IEEE LI Consultants Network, LI Metal Workers, Mensa Society, NYS Professional Inventors, Suffolk County Inventors

---

EXPERT WITNESS **TECHNICAL INVESTIGATOR**

MARTIN KANNER AE, EE, MEE

PRODUCT LIABILITY
MACHINE INJURY

FIRE DAMAGE INJURY
LIGHTNING DAMAGE

KEMCo

sixxpoppy@juno.com
(516) 681-4346

POWER –CONTROLS DIV.
42 Glenwood Road
Plainview, NY 11803

EEDEngineering - Quality Software/Testing Solutions

Andrew Franklin Baxt
Managing Director of Engineering

Phone: 516-678-6563
Mobile: 561-558-3499
Oceanside, New York 11572
Andrew.Baxt@EEDEngineering.com
www.EEDEngineering.com

Carl Meshenberg

Technology Consulting Services

Electronic Product Development
Project Management
Marketing Strategies
Contract Development & Oversight

Mobile: 516 383-2595
carl.jmesh@gmail.com

PROGRAMMING PLUS®

2503 AVENUE X
BROOKLYN, NY 11235

HARDWARE & SOFTWARE CONSULTING

- ADMINISTRATION
- DATABASES
- UNIX
- DEVELOPMENT
- NETWORKS
- LINUX
- ENGINEERING
- INTERNET
- VMS
- INTEGRATION
- SECURITY
- WINDOWS

For expert assistance, contact ***Robert Weiner***, **EE**, **PE**, at:
Tel: **(718) 648-6902** Email: **info@progplus.com**
Fax: **(718) 648-7449** Web: **www.progplus.com**

IEEE Consultants Network of Long Island
PO Box 411, Malverne NY 11565-0411
www.licn.org
(516) 379-1678

Affiliated with the Institute of Electrical and Electronics Engineers, Inc.

IEEE

Be sure to visit our web Blog at:
licn.typepad.com/my_weblog

John F. Vodopia, Esq.

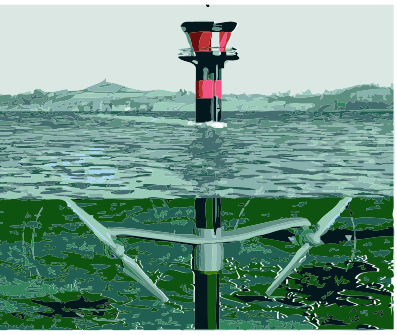
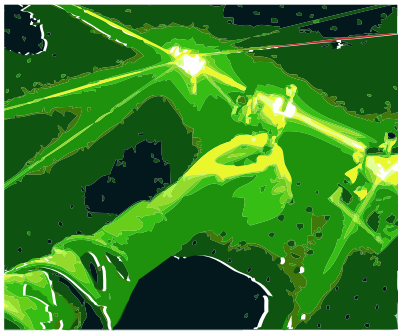
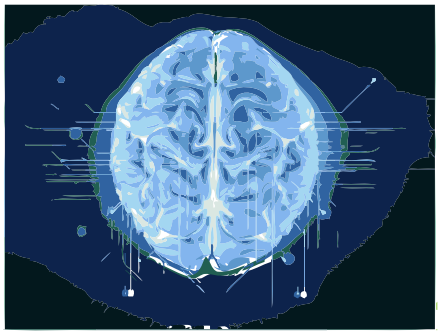
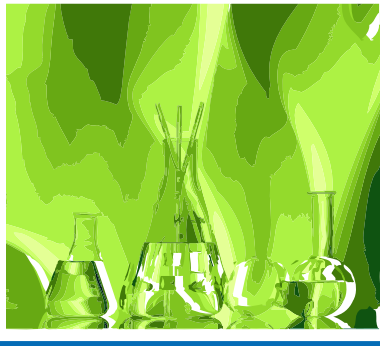
Intellectual Property Law Firm
133C New York Avenue
Huntington, NY 11743

631-673-7555 ext: 5
631-327-6197 (Mobile)
631-425-7030 (Fax)

jvodopia@gmail.com
jvodopia@ieee.org

IEEE | LONG ISLAND SECTION

THE PULSE OF LONG ISLAND

1953-2018

IEEE | LONG ISLAND SECTION

PRODUCED BY THE LONG ISLAND SECTION OF THE INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS